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09/307,044	05/07/1999	ROBERT M. DUBOC JR.	CT-M117US	4326

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Wagner Murabito & Hao LLP
Two North Market Street
Third Floor
San Jose, CA 95113

EXAMINER	
ANYASO, UCHENDU O	

ART UNIT	PAPER NUMBER
2675	30

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/307,044	DUBOC ET AL.	
	Examiner	Art Unit	
	Uchendu O Anyaso	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2003*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-40,42,44,46,47,49-52,54-59 and 66-154* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-4,6-40,42,44,46,47,49-52,54-59,125-128 and 131-138* is/are allowed.

6)☒ Claim(s) *66-98,115-124,129,130 and 139-154* is/are rejected.

7)☒ Claim(s) *99-114* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *22, 24, 27*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Miscellaneous Office Letter*.

DETAILED ACTION

1. **Claims 1-4, 6-40, 42, 44, 46, 47, 49-52, 54-59** and **66-154** are pending in this action.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 66-81, 84-87, 93-97, 124, 128-130** and **146-149** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Bird et al* (U.S. Patent 5,483,263).

Regarding **independent Claims 66, 129** and **146**, and for **claims 147-149**, *Jones et al* teaches a backlit display, an imaging cell on which an image is formed, a source of pulsed backlighting which sequentially illuminates portions of the imaging cell, a shutter in front of the imaging cell, comprising a plurality of segments, each segment being switchable between a substantially transparent state and a strongly light absorbing state and being associated with a portion of the imaging cell which is being illuminated in sequence, and a switching means for switching each segment synchronously with the pulsed backlighting such that each segment is in its substantially transparent state when the source of pulsed backlight is not illuminating such portion of the imaging cell (column 3, lines 9-28). This combination of the switching mechanism and the pulsed backlighting help produce the multiplicity of the selection.

Furthermore, *Jones et al* teaches a CRT in Figure 9 such that the CRT's do simultaneously display an image line since CRT's scan each line because flat-panel displays such as plasma and electroluminescent displays do simultaneously display an image line wherein the column drivers on a flat panel display latch one row of image data at the same time so that when the row strobes, the whole line or row turns on simultaneously or at once.

Furthermore, *Jones et al*'s CRT in Figure 9 is modified, and suggest that those skilled in the art will understand that this invention can be used with other self-luminous displays such as plasma and electroluminescent displays (*see Jones* at column 7, lines 5-9; *see also* Applicant, p.11).

However, *Jones et al* does not teach a control component that utilizes light in switching the states of a device (e.g., the shutter strips to be switched between a light-transmissive state and a light-absorptive state). On the other hand, *Bird et al* teaches this concept of utilizing light to switch between states by teaching an electro-optic device such that the electro-optically controlled elements (8) would utilizes light in causing the altering and controlling of their properties between states such as logic "1" or "0"(column 6, lines 15-48, figure 1 at 7-11; *see also* column 5, lines 34-41, figure 2 at 3 & 5; column 10, lines 1-14, figures 8 & 9 at 11(a)-(c) & 35). Also, Bird teaches how shutters are provided on a second array 7 in a manner that enables photosensitive elements 11 to be exposed to light only when the array 7 is in its position over the display (column 6, lines 40-48).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al* and *Bird et al* in order to design a display which comprises a control component that utilizes light in causing the shutter strips to be selectively placed in their light-transmissive and light-

absorptive states because while *Jones et al* teaches a backlit display, a shutter in front of the imaging cell, comprising a plurality of segments, each segment being switchable between a substantially transparent state and a strongly light absorbing state, *Bird et al* teaches a control component that utilizes light in switching the states of a device wherein such states would be (e.g., the shutter strips to be switched between a light-transmissive state and a light-absorptive states as taught in Jones. The motivation for combining these inventions would have been to reduce the number of components in the design of the display because this design corresponds to a unique arrangement of photosensitive elements (*see generally* column 1, lines 25-35).

Regarding **Claim 67**, in addition to reasons described in Claim 66, *Jones et al* teaches that the shutter in front of the imaging cell comprises a plurality of segments, each being switchable between a substantially transparent state and a strongly light absorbing state (column 3, lines 14-17). Furthermore, *Jones et al* teaches the transmission of a part of the ambient light while it is in its light transmissive state, and absorbs portions of the ambient while in its light absorptive state (column 4, lines 54-68 *to* column 5, lines 1-29, figures 1a, 1b, 2a, 2b, 7a & 7b).

Regarding **Claim 68**, in addition to reasons described in Claim 67, *Jones et al* teaches a method wherein the shutter transmits a portion of the ambient light being at least 0.1 (column 4, lines 24-30).

Regarding **Claim 69**, in addition to reasons described in Claim 66, *Jones et al* teaches a shutter strip that appears dark when it is in its light-absorptive state (column 4, lines 41-42, figure 1b at 3b).

Regarding **Claim 70**, in addition to reasons described in Claim 66, this aspect of applicant's claims is common to displays having contrast features.

Regarding **Claim 71**, in addition to reasons described in Claims 66, the switching means comprises control elements which facilitates the placement of the shutter in their light-transmissive and light-absorptive states.

Regarding **Claim 72**, in addition to reasons described in Claim 71, *Jones et al* teaches a display wherein each control element is operable to provide light that causes the shutter strips/segments to be in the light-transmissive and light-absorptive states (column 3, lines 49-54).

Regarding **Claim 74**, in addition to reasons described in Claim 73, *Jones et al* teaches a switching means which functions as a control component for selectively placing the shutter strips in their light-transmissive and light-absorptive states (*see* figures 1a & 1b at 4).

Regarding **Claim 76**, in addition to reasons described in Claim 75, *Jones et al* teaches a shutter strip/segment in its light-transmissive state when the activated image line/cell associated with that strip is dark (column 4, lines 54-59).

Regarding **Claim 77**, in addition to reasons described in Claim 75, *Jones et al* teaches a shutter in front of the imaging cell comprising a plurality of segments being switchable synchronously between a transparent state and a light absorbing state (column 3, lines 14-28).

Regarding **Claim 78**, in addition to reasons described in Claim 77, *Jones et al* teaches an embodiment of his invention whereby the screen need not switch entirely all at once but may do so in segments (column 5, lines 43-44), and is synchronously switchable such that the front layer is in its transparent state when the projector is projecting an image and in its dark state when the projector is not (column 5, lines 11-24). This is similar to applicant's claim of display wherein plurality of the shutter strips are simultaneously in their light-transmissive states when activated while the other associated imaging lines are deactivated.

Regarding **Claim 85**, in addition to reasons described in Claim 80, arguments discussed in Claim 6 are also applicable to Claims 19 and 85.

Regarding **Claim 86**, in addition to reasons described in Claim 71, *Jones et al* teaches a shutter in front of the imaging cell, comprising a plurality of segments, which is similar to the laterally separated imaging elements as claimed by applicant (column 3, lines 14-19).

Regarding **Claim 87**, in addition to reasons described in Claim 86 respectively, *Jones et al* teaches a display wherein the imaging element is light emissive (claim 1, column 10, lines 53-68).

Regarding **Claim 95**, in addition to reasons described in Claim 66, *Jones et al* teaches shutter strips comprising parts of a liquid-crystal structure (column 7, lines 56-59).

Regarding **Claim 96**, in addition to reasons described in Claim 95, *Jones et al* teaches a display wherein the liquid crystal contains a liquid-crystal material capable of being controlled to selectively transmit an image defined by unpolarized light incident on the liquid crystal material (column 8, lines 44-65).

Regarding **Claim 97**, in addition to reasons described in Claim 96, *Jones et al* teaches a display with a liquid crystal material that comprises liquid material, pleochroic dye with a dark and transmissive appearance (column 8, lines 66-67 *to* column 9, lines 1-22).

Regarding Claims **73, 75, 79, 80, 81, 84, 93, 94, 128** and **130**, in addition to arguments discussed in Claims 72, 66, 71, 79, 80, 80, 66, 93, 127 and 129 respectively, arguments discussed in independent claims 66 and 129 are also applicable to claims 73, 75, 79, 80, 81, 84, 93, 94, 119, 128, and 130.

Regarding **Claim 124**, in addition to reasons described in Claims 66, *Jones et al* teaches imaging and shutter lines which are parallel to one another (figure 4 at 17).

4. **Claims 82, 83, 88-92** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Bird et al* (U.S. Patent 5,483,263), and further in view of *Nakamoto* (U.S. Patent 6,031,328).

Regarding **Claims 82, 83, 88,** in addition to reasons described in Claims 80, 82 and 87 respectively, neither *Jones et al* nor *Bird et al* specifically teach a display with imaging lines that emit light in response to radiation that impinges selectively on light emissive material of that imaging line. On the other hand, *Nakamoto* teaches a phosphor member for each pixel formed on the surface of the anode electrode facing the cold cathodes (*see Abstract*). This results in the formation of the light source for emitting light for each pixel (*see Abstract*). a well-known liquid crystal display panel for modulating an amount of transmission light for each pixel is provided above the light source (*see Abstract*).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al, Bird et al* and *Nakamoto* because while *Jones et al* teaches a display presenting an image having a shutter which switches between a substantially transparent state and a dark, light absorbing state, and *Bird et al* teaches an electro-optic device wherein an electro-optically controlled element (8) utilizes light in causing the shutter strips to be placed in their light-transmissive and light-absorptive states, *Nakamoto* teaches how a flat panel display device with a light source controls transmission light for each pixel. The motivation for combining these

inventions would have been to design a flat panel display device that provides high precision, high brightness, high contrast, and small power consumption.

Regarding **Claim 89**, in addition to reasons described in Claim 88, it is obvious that radiation comprises electrons because electrons are components of radiation rays.

Regarding **Claim 90**, in addition to reasons described in Claim 87, *Jones et al* teaches a potential across the imaging element through the use of a pulsed backlight (claim 1, column 10, lines 53-66).

Regarding **Claim 91**, in addition to reasons described in Claim 86, neither *Jones et al* nor *Bird et al* teach a light valve present in each imaging element. On the other hand, *Nakamoto* teaches a light modulator which controls an amount of transmission of each light emitted from the phosphor member (column 2, lines 47-50).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al* and *Nakamoto* because while *Jones et al* teaches a display presenting an image having enhanced contrast which switches between a bright, and dark state, and *Bird et al* teaches an electro-optic device wherein an electro-optically controlled element (8) utilizes light in causing the shutter strips to be placed in their light-transmissive and light-absorptive states, *Nakamoto* teaches how to control the transmission of the light emitted. The motivation for doing so would have been to provide a flat panel display device that has high brightness, high contrast, small power consumption, and high precision.

Regarding **Claim 92**, in addition to reasons described in Claim 91, arguments described in Claim 26 are also applicable to claim 92.

5. Claims 115-118, 119 and 120-123 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Bird et al* (U.S. Patent 5,483,263), and further in view of in view of *Curtin et al* (U.S. Patent 5,686,790).

Regarding **Claims 115**, in addition to reasons described in Claim 66 above, neither *Jones et al* nor *Bird et al* teach an image-producing component which has a first and second plate structures spaced apart. On the other hand, *Curtin et al* teaches a faceplate, and a backplate which extend parallel to each other in an active display region (column 3, lines 50-57).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al*, *Bird et al* and *Curtin et al* because while *Jones et al* teaches a display presenting an image having enhanced contrast which switches between a bright, and dark state, and *Bird et al* teaches an electro-optic device wherein an electro-optically controlled element (8) utilizes light in causing the shutter strips to be placed in their light-transmissive and light-absorptive states, *Curtin et al* teaches a flat panel display which includes a faceplate and backplate wherein the faceplate includes an active region. The motivation for combining these inventions would have been to produce a display structured to produce or modulate light.

Regarding **Claims 116** and **117**, in addition to reasons described in Claims 115 and 116 respectively, *Curtin et al* teaches an image producing component (flat panel device) comprising a

faceplate, backplate, a cathode means for emitting electrons, and a light-emitting means (*see Curtin et al* at claims 1 & 11, column 27, lines 25-35 *and* column 28, lines 4-8).

Regarding **Claims 118, 121, 122, and 123,** in addition to reasons described in Claims 66, 118, 118, and 122 respectively, *Curtin et al* teaches an image-producing component which is a flat panel device, and this comprises a cathode ray tube display, liquid crystal display, plasma displays, electroluminescent and light-emitting displays (column 5, lines 59-63; column 3, lines 50-60). Furthermore, *Curtin et al* teaches a flat panel display in which electrons are emitted from the cathode surface toward the phosphor coated interior of the faceplate (column 8, lines 21-28, figure 2A at 202, 203 & 206).

Regarding **Claim 120**, in addition to reasons described in Claim 119 respectively above, *Curtin et al* teaches the presence of a ceramic substrate that is connected with the elements (column 3, lines 65-67 *to* column 4, lines 1-3). This ceramic substrate is naturally made of organic material.

Regarding **Claim 119**, in addition to arguments discussed in 118, arguments discussed in claim 66 also applies to claim 119.

6. **Claim 98** is rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Bird et al* (U.S. Patent 5,483,263), and further in view of *Waters et al* (U.S. Patent 4,596,446).

Regarding **Claim 98**, in addition to reasons described in Claim 97, *Jones et al* teaches a display in which the molecules of the pleochroic dye generally align with the molecules of liquid crystals (column 8, lines 66-67 *to* column 9, line 1). However, neither *Jones et al* nor *Bird et al* teach a display wherein the host liquid crystal material comprises a cholesteric liquid crystal. On the other hand, *Waters et al* teaches a liquid crystal device which comprises a layer of long pitch cholesteric liquid crystal material incorporating a pleochroic dye (*see Waters et al* at Abstract).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al*, *Bird et al* and *Waters et al* because while *Jones et al* teaches how a display with molecules of the pleochroic dye generally align with the molecules of liquid crystals, and *Bird et al* teaches an electro-optic device wherein an electro-optically controlled element (8) utilizes light in causing the shutter strips to be placed in their light-transmissive and light-absorptive states, *Waters et al* teaches how a liquid crystal device with cholesteric liquid crystal material incorporate a pleochroic dye. The motivation for combining these inventions would have been to achieve a sharp transmission-voltage characteristic for rapidly increasing voltages, without hysteresis.

7. **Claims 139-145** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637).

Regarding **independent Claims 139, 141, 144** and **claims 140, 142, 143, 145** *Jones et al* teaches a backlit display, an imaging cell on which an image is formed, a source of pulsed backlighting which sequentially illuminates portions of the imaging cell, a shutter in front of the imaging cell, comprising a plurality of segments, each segment being switchable between a

substantially transparent state and a strongly light absorbing state and being associated with a portion of the imaging cell which is being illuminated in sequence, and a switching means for switching each segment synchronously with the pulsed backlighting such that each segment is in its substantially transparent state when the source of pulsed backlight is not illuminating such portion of the imaging cell (column 3, lines 9-28). This combination of the switching mechanism and the pulsed backlighting help produce the multiplicity of the selection signals which activate the plurality of segments.

Furthermore, *Jones et al* teaches a CRT in Figure 9. The CRT's do simultaneously display an image line since CRT's scan each line, and flat-panel displays such as plasma and electroluminescent displays do simultaneously display an image line because the column drivers on a flat panel display latch one row of image data at the same time so that when the row strobes, the whole line or row turns on simultaneously or at once. Furthermore, *Jones et al*'s CRT in Figure 9 is modified, and suggest that those skilled in the art will understand that this invention can be used with other self-luminous displays such as plasma and electroluminescent displays (*see Jones* at column 7, lines 5-9).

Furthermore, *Jones et al* teaches a shutter strip/segment in its light-transmissive state when the activated image line/cell associated with that strip is dark (column 4, lines 54-59).

Furthermore, *Jones et al* teaches a shutter in front of the imaging cell comprising a plurality of segments being switchable synchronously between a transparent state and a light absorbing state (column 3, lines 14-28).

8. **Claims 150-154** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Curtin et al* (U.S. Patent 5,686,790).

Regarding independent **Claim 150**, and **claims 151-154**, *Jones et al* teaches a backlit display, an imaging cell on which an image is formed, a source of pulsed backlighting which sequentially illuminates portions of the imaging cell, a shutter in front of the imaging cell, comprising a plurality of segments, each segment being switchable between a substantially transparent state and a strongly light absorbing state and being associated with a portion of the imaging cell which is being illuminated in sequence, and a switching means for switching each segment synchronously with the pulsed backlighting such that each segment is in its substantially transparent state when the source of pulsed backlight is not illuminating such portion of the imaging cell (column 3, lines 9-28). This combination of the switching mechanism and the pulsed backlighting help produce the multiplicity of the selection signals which activate the plurality of segments.

Furthermore, *Jones et al* teaches a CRT in Figure 9. The CRT's do simultaneously display an image line since CRT's scan each line, and flat-panel displays such as plasma and electroluminescent displays do simultaneously display an image line because the column drivers on a flat panel display latch one row of image data at the same time so that when the row strobes, the whole line or row turns on simultaneously or at once. Furthermore, *Jones et al*'s CRT in Figure 9 is modified, and suggest that those skilled in the art will understand that this invention can be used with other self-luminous displays such as plasma and electroluminescent displays (*see Jones* at column 7, lines 5-9).

However, *Jones et al* does not teach in detail an image-producing component which is a flat panel device, and this comprises a cathode ray tube display, liquid crystal display, plasma displays, electroluminescent and light-emitting displays. On the other hand, *Curtin et al* teaches an image-producing component which is a flat panel device, and this comprises a cathode ray tube display, liquid crystal display, plasma displays, electroluminescent and light-emitting displays (column 5, lines 59-63; column 3, lines 50-60). Furthermore, *Curtin et al* teaches a flat panel display in which electrons are emitted from the cathode surface toward the phosphor coated interior of the faceplate (column 8, lines 21-28, figure 2A at 202, 203 & 206).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al* and *Curtin et al* because while *Jones et al* teaches a display presenting an image having enhanced contrast which switches between a bright, and dark state, *Curtin et al* teaches a flat panel display which includes a faceplate and backplate wherein the faceplate includes an active region. The motivation for combining these inventions would have been to produce a display structured to produce or modulate light.

Allowable Subject Matter

9. Independent **Claims 1, 57, 125 and 127,** and their corresponding dependent **claims 2-4, 6-40, 42, 44, 46, 47, 49-52, 54-59, 126, 128 and 131-138** are allowed.

10. **Claims 99-105 and 106-114** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments with respect to **Claims 66-98, 115-124, 129, 130** and **139-154** filed on January 16, 2003 have been fully considered but they are moot in view of the new grounds for rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

6/8/2004

CHANH NGUYEN
PRIMARY EXAMINER